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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/627,591	07/28/2000	Hyun Jin Kim	EKM-74139	3648

7590 01/21/2004

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EXAMINER

BUTTNER, DAVID J

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/627,591

Applicant(s)

KIM ET AL.

Examiner

David Buttner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 and 39-46 is/are pending in the application.
- 4a) Of the above claim(s) 17-31, 37 and 39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 9-14, 16, 32 and 40-46 is/are rejected.
- 7) ☒ Claim(s) 5-8, 15, 33-36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Claims 1-4, 9-14, 16, 32 and 40-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Sullivan '205 Patent optionally in view of the encyclopedia of chemical Technology or encyclopedia of Polymer science and engineering.

Sullivan suggests fillers such as clay (col. 11 line 51) in the inner and outer cover layers of golf balls (col. 11 line 28). Coupling agents may be used to couple the filler to resin (col. 10 line 57). This qualifies as applicant's "reacted" limitation. The cover can be polyamide (col. 7 line 17). Ionomers (col. 7 line 14) and thermoplastic elastomers (col. 7 line 34) could also be used in the cover.

Sullivan does not report the precise dimensions of his clay, but it is known that clays are "platey" (i.e. high L/D ratio) and can have a largest dimension within applicant's range (see Encyclopedia of Chemical Technology and Encyclopedia of Polymer Science). It appears many typical clays (treated with coupling agent) meet applicant's requirements. It would have been obvious to use such clay in Sullivan's ball.

Claims 1-4, 9-14, 16, 32 and 40 – 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Sullivan's '025 Patent in view of Okada '411.

Sullivan suggests fillers such as clay (col. 11 line 51) in the inner and outer covers of golf balls (col. 11 line 28). The covers may be polyamide (col. 7 line 17). Sullivan does not teach applicant's preferred technique of combining the clay and Polyamide into a "nanocomposite".

Okada teaches such a technique results in improved mechanical strength and toughness. Applicant apparently admits (page 7 line 14) that Okada produces the claimed nanocomposites.

It would have been obvious to use Okada's superior clay/polyamide nanocomposite as the clay/polyamide cover suggested by Sullivan.

Claims 5-8, 15 and 33-36 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant's arguments filed 10/14/03 have been considered but they are not persuasive.

Applicant argues the examiner has admitted Sullivan does not teach applicant's preferred technique of combining clay and polyamide into nanocomposite.

Applicant's claims do not require any specific technique of combining clay and polyamide. Most of the claims do not require polyamide at all. None require the polyamide to be polymerized in the presence of the clay. Merely melt blending clay, polyamide and coupling agent results in clay "reacted" with the polyamide. Arguments that the filler is not precoated with coupling agent are not relevant to the claims under examination as the claims make no such process limitation. The coupling agent (whether precoated or not) will wind up on the surface of the filler, bridging the filler to the matrix polymer. Secondly precoating the filler with coupling agent is the most common way to incorporate a coupling agent. This is immediately recognized by all in the art.

Applicant argues Sullivan teaches away from using reinforcing fillers.

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Sullivan clearly considers clay to be on appropriate filler. It would not have been listed otherwise. Even if clay was considered less preferred, this would not overcome the rejection (MPEP 2123).

Applicant argues the encyclopedias teach typical clays are larger than the 1 micron maximum of the claims. Specifically, applicant states the 0.2-1 micron and 6.3-5 micron ranges reflect the smallest dimension of the clay and would therefore have a largest dimension well above the 1 micron maximum.

The Encyclopedias do not state these were measurement of the smallest dimension.

Applicant's comments that the stacked series of platelets reduce the L/D ratio to below 10 are unconvincing. Applicant's L/D ratio is measured on the individual platelet (page 11 line 17) – not the stacked product.

The underlying premise that common clays have the claimed platelet dimensions should be commented on by the inventors in the response.

Applicant argues there is no motivation to combine the Sullivan and Okada Patents.

Okada (abstract) indicates his composite has improved toughness. Applicant is also concerned with improved toughness (shear resistance of table 2). This is the motivation to combine Sullivan's polyamide and clay in the manner taught by Okada.

Note that applicant's examples are not convincing of patentability. The rejected claims are much broader than the examples that are limited to specific materials and the comparison balls are not completely identified.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

This application contains claims 17-31, 37 and 39 drawn to nonelected inventions. A complete reply to the final rejection must include cancellation of nonelected claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Buttner whose telephone number is 571 272 1084. The examiner can normally be reached on Weekdays from 10:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 527 272 1119. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

DAVID J. BUTTNER
PRIMARY EXAMINER

D. Buttner/af
January 13, 2004

A handwritten signature in cursive script, appearing to read "David Buttner", is written over the typed name and title.